



**CONESTOGA-ROVERS  
& ASSOCIATES**

8615 W. Bryn Mawr Avenue, Chicago, Illinois 60631-3501  
Telephone: 773-380-9933 Facsimile: 773-380-6421  
www.CRAworld.com

April 7, 2010

Reference No. 034891

Mr. William J. Ryan  
United States Environmental  
Protection Agency  
Region V  
77 West Jackson Boulevard (SR-5J)  
Chicago, Illinois 60604-3590

**VIA E-MAIL**  
**AND**  
**REGULAR MAIL**

Dear Mr. Ryan:

Re: Quarterly Progress Report - 1<sup>st</sup> Quarter 2010  
Evergreen Manor Site  
Roscoe Township, Illinois

In accordance with Paragraph 31 of the "Consent Decree for Remedial Action and Cost Recovery" (entered on 2/26/09), this letter provides a progress report of activities by the Settling Defendants during the first quarter of 2010 at the Evergreen Manor Site located in Roscoe Township, Illinois.

1. *Describe the actions which have been taken toward achieving compliance with the Consent Decree during the previous quarter.*
  - On March 4, 2010, CRA conducted the fourth quarterly sampling event of the groundwater monitoring program, in accordance with the Remedial Action (RA) Work Plan (Long Term Groundwater Monitoring Plan) dated August 2007. The results of the sampling event are presented in Item 2 below.
2. *Summary of all results of sampling and tests and all other data received or generated by Settling Defendants or their contractors or agents in the previous quarter.*
  - On March 4, 2010, CRA conducted the fourth quarterly sampling event of the groundwater monitoring program. The five monitoring wells sampled are MW-01A, MW-03, MW-103S, MW-106S, and MW-106D <sup>1</sup>, the locations of which are presented on Figure 1, attached.

During the March 2010 sampling event, a groundwater sample was collected from each of the five monitoring wells. A sample summary is provided in Table 1, attached. Prior to sampling, the monitoring wells were purged using a stainless steel

<sup>1</sup> Consistent with U.S. EPA's May 20, 2009 approval, MW-106S and MW-106D will be used in lieu of MW-105S and MW-105D for all monitoring events required by the Consent Decree and the U.S. EPA-approved RA Work Plan.



April 7, 2010

2

Reference No. 034891

submersible pump and dedicated polyethylene tubing for each well. In order to remove all stagnant water and to minimize sediment agitation, CRA placed the pump near the tops of the water columns and purged the wells using slow purging/minimal drawdown techniques. A minimum of three standing well volumes of groundwater was removed from each well. The volume of standing water was calculated for 2-inch diameter monitoring wells as follows:

$$V = 0.16H$$

where:

V = volume of standing water in gallons

H = height of the water column in the well (feet)

Stabilization parameters consisting of pH, conductivity, temperature, oxidation-reduction potential (ORP), dissolved oxygen (DO), and turbidity were measured following removal of each standing well volume and prior to sample collection. The turbidity was measured using a portable meter and the rest of the parameters were measured using a flow-through cell. Purging continued until the parameters stabilized and the turbidity of the water was lowered. A summary of the purging activities is provided in Table 2, attached. The water purged from the wells was placed on the ground surface at least 15 feet away from each monitoring well.

Once the measured parameters stabilized, a groundwater sample was collected using the same pump and tubing as for purging. The collected groundwater samples were shipped via overnight courier to the project laboratory, TestAmerica Laboratories, Inc. (TestAmerica) of North Canton, Ohio, an accredited Illinois Environmental Accreditation Program (ILEAP) laboratory. TestAmerica analyzed the samples for the Target Compound List (TCL) of volatile organic compounds (VOCs). Quality Assurance/Quality Control (QA/QC) samples were also collected, consisting of one duplicate sample, one rinsate blank sample, one matrix spike/matrix spike duplicate (MS/MSD) sample, and a trip blank sample placed in the shipping cooler. A sample summary is provided in Table 1.

A copy of the TestAmerica analytical report is provided in Attachment A. The analytical data were validated by a CRA chemist and were found to be acceptable and suitable for their intended use, without qualification. A copy of the data validation report is provided in Attachment B.



April 7, 2010

3

Reference No. 034891

A summary of the detected groundwater analytical data from the first four quarterly sampling events is provided in Table 3, attached. Four VOCs were detected in the groundwater samples: cis-1,2-dichloroethene (cis-1,2-DCE); tetrachloroethene (PCE); 1,1,1-trichloroethane (1,1,1-TCA); and trichloroethene (TCE). None of the detected concentrations exceeded the Site 'Cleanup Standards for Groundwater', which are equal to the U.S. EPA's Maximum Contaminant Levels (MCLs).

The analytical data are consistent with the results presented by the Remedial Design Report (CRA, 2006) and continue to indicate: 1) a declining trend in the contaminant concentrations and, importantly, 2) that a groundwater plume and associated boundaries does not exist. Therefore, the data document that the remedy is protective of human health and the environment.

3. *Identify all work plans, plans, and other deliverables required by the Consent Decree completed and submitted during the previous quarter.*
  - In a letter dated January 6, 2010, CRA submitted to the U.S. EPA the Quarterly Progress Report for the 4<sup>th</sup> quarter of 2009.
4. *Describe all actions, including, but not limited to, data collection and implementation of work plans, which are scheduled for the next quarter and provide other information relating to the progress of construction, including, but not limited to, critical path diagrams, Gantt charts, and Pert charts.*
  - In accordance with Section 9.0 of the RA Work Plan, CRA will prepare an annual monitoring report to be submitted to the U.S. EPA prior to April 19, 2010, which is 45 calendar days from the completion of the March 2010 sampling event.
5. *Information regarding percentage of completion, unresolved delays encountered or anticipated that may affect the future schedule for implementation of the Work, and a description of efforts made to mitigate those delays or anticipated delays.*
  - 100% of the first year's groundwater monitoring has been completed.
  - No delays are anticipated at this time.



**CONESTOGA-ROVERS  
& ASSOCIATES**

April 7, 2010

4

Reference No. 034891

6. *Any modifications to the work plans or other schedules that Settling Defendants have proposed to EPA or that have been approved by EPA.*

- None to report.

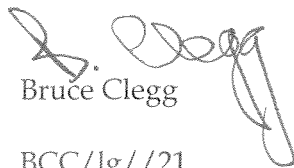
7. *Describe all activities undertaken in support of the Community Relations Plan during the previous quarter and those to be undertaken in the next quarter.*

- In accordance with the Communication Plan, dated November 2004, CRA has forwarded a copy of this progress report, presenting the results of the fourth quarterly groundwater sampling event, to the Winnebago County Health Department and to the Winnebago County Regional Planning and Economic Development Department.

If you have any questions regarding this monthly progress report, please do not hesitate to contact me at (773) 380-9234.

Yours truly,

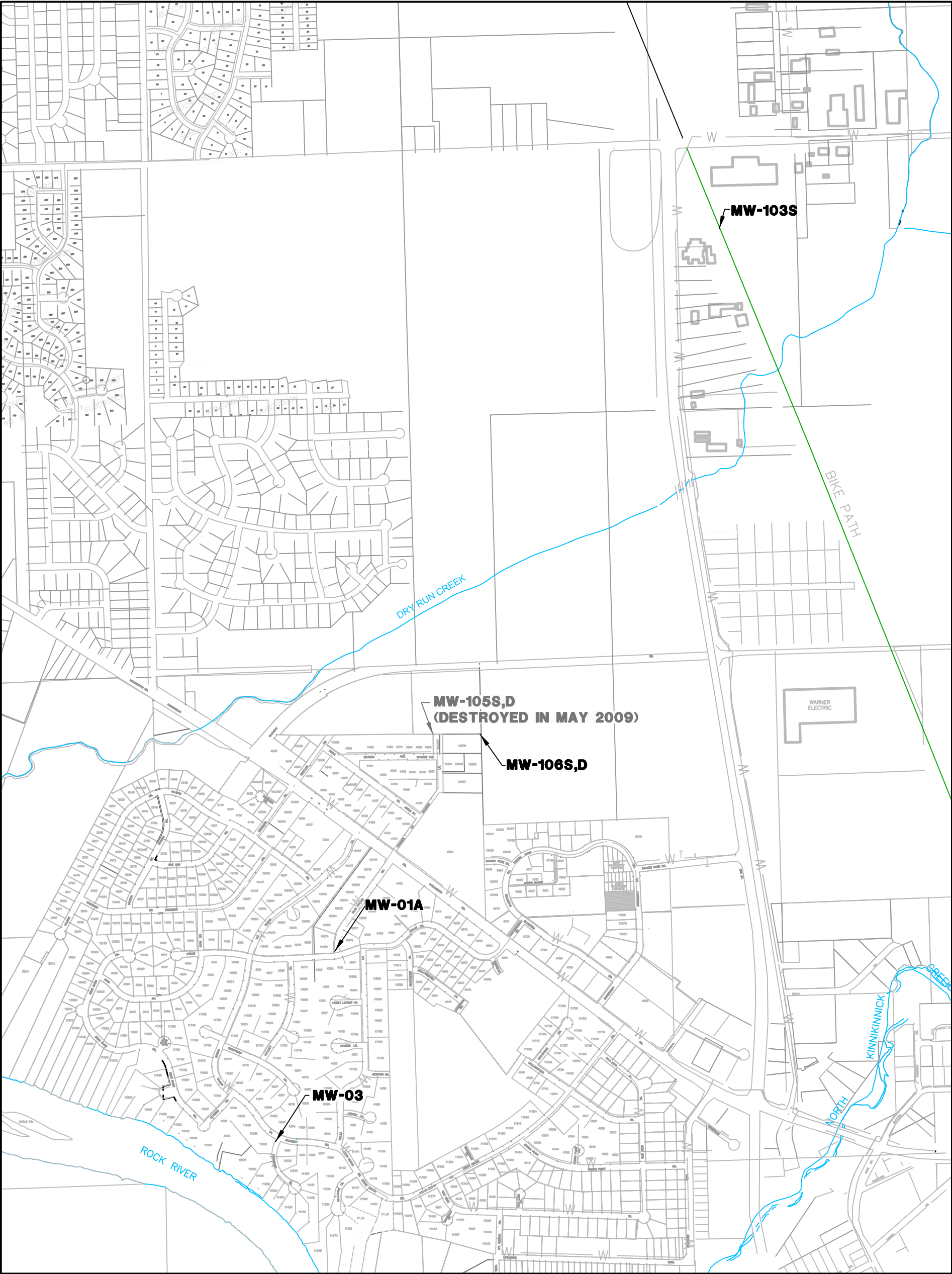
CONESTOGA-ROVERS & ASSOCIATES

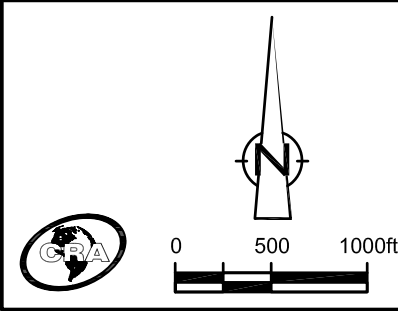


Bruce Clegg

BCC/lg//21  
Attachments

c.c.: Erin Rednour, Illinois EPA  
Winnebago County Health Department  
Winnebago County Regional Planning and Economic Development Department





**NOTE:**

MONITORING WELLS MW-106S AND MW-106D  
HAVE REPLACED WELLS MW-105S AND MW-105D  
IN THE GROUNDWATER MONITORING PROGRAM.

figure 1

**MONITORING WELL LOCATIONS**  
**GROUNDWATER MONITORING PROGRAM**  
**EVERGREEN MANOR SITE**  
*Roscoe Township, Illinois*

TABLE 1

SAMPLE SUMMARY - MARCH 2010  
GROUNDWATER MONITORING PROGRAM  
EVERGREEN MANOR SITE  
ROSCOE TOWNSHIP, ILLINOIS

<i>CRA Sample Number</i>	<i>Sample Matrix</i>	<i>Sample Location</i>	<i>QA/QC <sup>1</sup></i>	<i>Date Collected</i>	<i>Analyses</i>
GW-030410-JL-71	Groundwater	MW-103S	--	3/4/10	VOC <sup>2</sup>
GW-030410-JL-72	Groundwater	MW-106D	MS/MSD <sup>3</sup>	3/4/10	VOC
GW-030410-JL-73	Groundwater	MW-106S	--	3/4/10	VOC
GW-030410-JL-74	Lab Water	--	Rinsate Blank	3/4/10	VOC
GW-030410-JL-75	Groundwater	MW-01A	--	3/4/10	VOC
GW-030410-JL-76	Groundwater	MW-03	--	3/4/10	VOC
GW-030410-JL-77	Groundwater	MW-03	Duplicate	3/4/10	VOC

<sup>1</sup> QA/QC - Quality Assurance/Quality Control

<sup>2</sup> VOC - Volatile Organic Compounds

<sup>3</sup> MS/MSD - Matrix Spike/Matrix Spike Duplicate

TABLE 2

MONITORING WELL PURGING SUMMARY - MARCH 2010  
GROUNDWATER MONITORING PROGRAM  
EVERGREEN MANOR SITE  
ROSCOE TOWNSHIP, ILLINOIS

<i>Well Identifier</i>	<i>Date</i>	<i>Well Volume (gallons)</i>	<i>Volume Purged (gallons)</i>	<i>pH (Std. Units)</i>	<i>Conductivity (<math>\mu\text{S}/\text{cm}</math>)<sup>1</sup></i>	<i>Temperature (°C)</i>	<i>ORP<sup>2</sup> (mV)<sup>3</sup></i>	<i>Dissolved Oxygen (mg/L)<sup>4</sup></i>	<i>Turbidity (NTU)<sup>5</sup></i>	<i>Observations</i>
MW-01A	3/4/10	4.2	4.25	7.47	784	11.2	48	5.79	5.7	Clear
			8.5	7.43	785	11.4	49	5.81	0.7	Clear
			12.75	7.42	787	11.5	50	5.84	0.6	Clear
MW-03	3/4/10	9.3	9.5	7.52	725	10.2	65	4.11	24	Slightly cloudy
			19	7.51	719	10.2	67	4.08	2	Clear
			28.5	7.47	720	10.2	68	4.07	0.4	Clear
MW-103S	3/4/10	2.0	2.25	7.16	1,179	11.7	81	9.50	47	Slightly cloudy
			5.5	7.17	1,187	11.7	82	9.38	7.3	Clear
			7.75	7.17	1,194	11.7	86	9.24	2.1	Clear
			10	7.18	1,195	11.7	88	9.19	2.2	Clear
			12.25	7.19	1,192	11.7	87	9.18	0.6	Clear
MW-106S	3/4/10	5.5	6	7.59	719	11.5	64	7.17	54	Slightly cloudy
			12	7.47	717	11.4	68	7.15	3.4	Clear
			18	7.43	716	11.4	70	7.14	0.8	Clear
			24	7.41	716	11.4	71	7.13	0.4	Clear
MW-106D	3/4/10	11.1	11.5	7.45	716	10.8	73	4.09	0.9	Clear
			23	7.39	717	10.8	78	4.10	0.1	Clear
			34.5	7.39	717	10.8	79	4.11	0.1	Clear

<sup>1</sup> $\mu\text{S}/\text{cm}$  - microsiemens per centimeter<sup>2</sup>ORP - oxidation/reduction potential<sup>3</sup>mV - millivolts<sup>4</sup>mg/L - milligrams per liter<sup>5</sup>NTU - nephelometric turbidity units

TABLE 3

SUMMARY OF DETECTED GROUNDWATER ANALYTICAL DATA  
GROUNDWATER MONITORING PROGRAM  
EVERGREEN MANOR SITE  
ROSCOE TOWNSHIP, ILLINOIS

			MW-01A	MW-01A	MW-01A	MW-01A
<i>Sample Location</i>						
<i>Sample Date</i>			5/22/09	8/20/09	12/3/09	3/4/10
<i>Sample Number</i>			JK-051	JL-61	JK-68	JL-75
<i>Parameter</i>	<i>Units</i> <sup>1</sup>	<i>MCL</i> <sup>2</sup>				
<i>Volatile Organic Compounds</i>						
cis-1,2-Dichloroethene	mg/L	0.07	ND(0.001) <sup>3</sup>	ND(0.001)	ND(0.001)	ND(0.001)
Tetrachloroethene	mg/L	0.005	0.0027	0.0027	0.0023	0.0025
1,1,1-Trichloroethane	mg/L	0.2	0.0007 J <sup>4</sup>	0.00059 J	0.00061 J	0.00058 J
Trichloroethene	mg/L	0.005	0.00094 J	0.0008 J	0.00084 J	0.00083 J



TABLE 3

SUMMARY OF DETECTED GROUNDWATER ANALYTICAL DATA  
GROUNDWATER MONITORING PROGRAM  
EVERGREEN MANOR SITE  
ROSCOE TOWNSHIP, ILLINOIS

			MW-03	MW-03	MW-03	MW-03
<i>Sample Location</i>			5/22/09	8/20/09	12/3/09	3/4/10
<i>Sample Date</i>			JK-055/056	JL-62/63	JK-69/70	JL-76/77
<i>Sample Number</i>						
<i>Parameter</i>	<i>Units</i> <sup>1</sup>	<i>MCL</i> <sup>2</sup>				
<i>Volatile Organic Compounds</i>						
cis-1,2-Dichloroethene	mg/L	0.07	ND(0.001)/ND(0.001)	ND(0.001)/ND(0.001)	0.00021 J/ND(0.001)	ND(0.001)/ND(0.001)
Tetrachloroethene	mg/L	0.005	0.00058 J/0.00059 J <sup>5</sup>	0.00072 J/0.00075 J	0.00062 J/0.00063 J	0.00063 J/0.00065 J
1,1,1-Trichloroethane	mg/L	0.2	0.001/0.001	0.00089 J/0.001	0.00090 J/0.00092 J	0.00091 J/0.00089 J
Trichloroethene	mg/L	0.005	0.0023/0.0023	0.0023/0.0024	0.0022/0.0023	0.0021/0.0022

TABLE 3

SUMMARY OF DETECTED GROUNDWATER ANALYTICAL DATA  
GROUNDWATER MONITORING PROGRAM  
EVERGREEN MANOR SITE  
ROSCOE TOWNSHIP, ILLINOIS

			MW-103S	MW-103S	MW-103S	MW-103S
<i>Sample Location</i>						
<i>Sample Date</i>			5/22/09	8/20/09	12/3/09	3/4/10
<i>Sample Number</i>			JK-050	JK-57	JK-64	JL-71
<i>Parameter</i>	<i>Units</i> <sup>1</sup>	<i>MCL</i> <sup>2</sup>				
<i>Volatile Organic Compounds</i>						
cis-1,2-Dichloroethene	mg/L	0.07	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Tetrachloroethene	mg/L	0.005	0.0028	0.0033	0.0028	0.0023
1,1,1-Trichloroethane	mg/L	0.2	0.00065 J	0.00069 J	0.00084 J	0.0016
Trichloroethene	mg/L	0.005	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)

TABLE 3

SUMMARY OF DETECTED GROUNDWATER ANALYTICAL DATA  
GROUNDWATER MONITORING PROGRAM  
EVERGREEN MANOR SITE  
ROSCOE TOWNSHIP, ILLINOIS

			MW-106S	MW-106S	MW-106S	MW-106S
<i>Sample Location</i>						
<i>Sample Date</i>			5/22/09	8/20/09	12/3/09	3/4/10
<i>Sample Number</i>			JK-054	JL-58	JK-65	JL-73
<i>Parameter</i>	<i>Units</i> <sup>1</sup>	<i>MCL</i> <sup>2</sup>				
<i>Volatile Organic Compounds</i>						
cis-1,2-Dichloroethene	mg/L	0.07	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Tetrachloroethene	mg/L	0.005	0.00031 J	0.00038 J	0.00033 J	0.00037 J
1,1,1-Trichloroethane	mg/L	0.2	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Trichloroethene	mg/L	0.005	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)

TABLE 3

SUMMARY OF DETECTED GROUNDWATER ANALYTICAL DATA  
GROUNDWATER MONITORING PROGRAM  
EVERGREEN MANOR SITE  
ROSCOE TOWNSHIP, ILLINOIS

			MW-106D	MW-106D	MW-106D	MW-106D
<i>Sample Location</i>						
<i>Sample Date</i>			5/22/09	8/20/09	12/3/09	3/4/10
<i>Sample Number</i>			JK-053	JL-59	JK-66	JL-72
<i>Parameter</i>	<i>Units</i> <sup>1</sup>	<i>MCL</i> <sup>2</sup>				
<i>Volatile Organic Compounds</i>						
cis-1,2-Dichloroethene	mg/L	0.07	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Tetrachloroethene	mg/L	0.005	0.00031 J	0.00031 J	0.00031 J	ND(0.001)
1,1,1-Trichloroethane	mg/L	0.2	0.00033 J	0.00034 J	0.00034 J	0.00029 J
Trichloroethene	mg/L	0.005	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)

<sup>1</sup> Units as indicated in milligrams per liter (mg/L)

<sup>2</sup> MCL - Maximum Contaminant Level

<sup>3</sup> ND( ) - not detected at the quantitation limit stated in parentheses

<sup>4</sup> J - estimated value

<sup>5</sup> Sample result/Duplicate sample result

ATTACHMENT A

TESTAMERICA ANALYTICAL REPORT

## ANALYTICAL REPORT

PROJECT NO. 34891

EVERGREEN MANOR

Lot #: A0C050473

Julie Czech

Conestoga-Rovers & Associates,  
11004 East 51st Street  
Tulsa, OK 74146

TESTAMERICA LABORATORIES, INC.



Approved for release.  
Amy McCormick  
Project Manager  
3/16/2010 1:50 PM

**Amy L. McCormick**  
Project Manager  
amy.mccormick@testamericainc.com

March 15, 2010

**TestAmerica Laboratories, Inc.**

TestAmerica North Canton 4101 Shuffel Street NW, North Canton, OH 44720

Tel (330)497-9396 Fax (330)497-0772 [www.testamericainc.com](http://www.testamericainc.com)



## **CASE NARRATIVE**

A0C050473

The following report contains the analytical results for seven water samples and one quality control sample submitted to TestAmerica North Canton by Conestoga-Rovers & Associates, Inc. from the Evergreen Manor Site, project number 34891. The samples were received March 05, 2010, according to documented sample acceptance procedures.

TestAmerica utilizes USEPA approved methods in all analytical work. The samples presented in this report were analyzed for the parameter(s) listed on the analytical methods summary page in accordance with the method(s) indicated. Preliminary results were provided to Julie Czech on March 12, 2010. A summary of QC data for these analyses is included at the back of the report.

TestAmerica North Canton attests to the validity of the laboratory data generated by TestAmerica facilities reported herein. All analyses performed by TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the applicable methods. TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

All parameters were evaluated to the method detection limit and include qualified results where applicable.

Please refer to the Quality Control Elements Narrative following this case narrative for additional quality control information.

If you have any questions, please call the Project Manager, Amy L. McCormick, at 330-497-9396.

This report is sequentially paginated. The final page of the report is labeled as "END OF REPORT."

## **SUPPLEMENTAL QC INFORMATION**

### **SAMPLE RECEIVING**

The temperature of the cooler upon sample receipt was 1.3°C.

## **CASE NARRATIVE (continued)**

### **GC/MS VOLATILES**

The sample(s) that contained concentrations of target analyte(s) at a reportable level in the associated Method Blank(s) were flagged with "B". All target analytes in the Method Blank must be below the reporting limit (RL) or the associated sample(s) must be ND with the exception of common laboratory contaminants.

The sample(s) that contain results between the MDL and the RL were flagged with "J". There is a possibility of false positive or mis-identification at these quantitation levels. In analytical methods requiring confirmation of the analyte reported, confirmation was performed only down to the standard reporting limit (SRL). The acceptance criteria for QC samples may not be met at these quantitation levels.



## QUALITY CONTROL ELEMENTS NARRATIVE

TestAmerica conducts a quality assurance/quality control (QA/QC) program designed to provide scientifically valid and legally defensible data. Toward this end, several types of quality control indicators are incorporated into the QA/QC program, which is described in detail in QA Policy, QA-003. These indicators are introduced into the sample testing process to provide a mechanism for the assessment of the analytical data. Program or agency specific requirements take precedence over the requirements listed in this narrative.

### **QC BATCH**

Environmental samples are taken through the testing process in groups called QUALITY CONTROL BATCHES (QC batches). A QC batch contains up to twenty environmental samples of a similar matrix (water, soil) that are processed using the same reagents and standards. TestAmerica North Canton requires that each environmental sample be associated with a QC batch.

Several quality control samples are included in each QC batch and are processed identically to the twenty environmental samples.

For SW846/RCRA methods, QC samples include a METHOD BLANK (MB), a LABORATORY CONTROL SAMPLE (LCS) and, where appropriate, a MATRIX SPIKE/MATRIX SPIKE DUPLICATE (MS/MSD) pair or a MATRIX SPIKE/SAMPLE DUPLICATE (MS/DU) pair. If there is insufficient sample to perform an MS/MSD or an MS/DU, then a LABORATORY CONTROL SAMPLE DUPLICATE (LCSD) is included in the QC batch.

For 600 series/CWA methods, QC samples include a METHOD BLANK (MB), a LABORATORY CONTROL SAMPLE (LCS) and, where appropriate, a MATRIX SPIKE (MS). An MS is prepared and analyzed at a 10% frequency for GC Methods and at a 5% frequency for GC/MS methods.

### **LABORATORY CONTROL SAMPLE**

The Laboratory Control Sample is a QC sample that is created by adding known concentrations of a full or partial set of target analytes to a matrix similar to that of the environmental samples in the QC batch. Multi peak responders may not be included in the target spike list due to co-elution. The LCS analyte recovery results are used to monitor the analytical process and provide evidence that the laboratory is performing the method within acceptable guidelines. All control analytes indicated by a bold type in the LCS must meet acceptance criteria. Failure to meet the established recovery guidelines requires the reparation and reanalysis of all samples in the QC batch. Comparison of only the failed parameters from the first batch are evaluated. The only exception to the rework requirement is that if the LCS recoveries are biased high and the associated sample is ND (non-detected) for the parameter(s) of interest, the batch is acceptable.

At times, a Laboratory Control Sample Duplicate (LCSD) is also included in the QC batch. An LCSD is a QC sample that is created and handled identically to the LCS. Analyte recovery data from the LCSD is assessed in the same way as that of the LCS. The LCSD recoveries, together with the LCS recoveries, are used to determine the reproducibility (precision) of the analytical system. Precision data are expressed as relative percent differences (RPDs). If the RPD fails for an LCS/LCSD and yet the recoveries are within acceptance criteria, the batch is still acceptable.

### **METHOD BLANK**

The Method Blank is a QC sample consisting of all the reagents used in analyzing the environmental samples contained in the QC batch. Method Blank results are used to determine if interference or contamination in the analytical system could lead to the reporting of false positive data or elevated analyte concentrations. All target analytes must be below the reporting limits (RL) or the associated sample(s) must be ND except under the following circumstances:

- Common organic contaminants may be present at concentrations up to 5 times the reporting limits. Common metals contaminants may be present at concentrations up to 2 times the reporting limit, or the reported blank concentration must be twenty fold less than the concentration reported in the associated environmental samples. (See common laboratory contaminants listed in the table.)

<b><u>Volatile (GC or GC/MS)</u></b>	<b><u>Semivolatile (GC/MS)</u></b>	<b><u>Metals ICP-MS</u></b>	<b><u>Metals ICP Trace</u></b>
Methylene Chloride, Acetone, 2-Butanone	Phthalate Esters	Copper, Iron, Zinc, Lead, Calcium, Magnesium, Potassium, Sodium, Barium, Chromium, Manganese	Copper, Iron, Zinc, Lead

## QUALITY CONTROL ELEMENTS NARRATIVE (continued)

- Organic blanks will be accepted if compounds detected in the blank are present in the associated samples at levels 10 times the blank level. Inorganic blanks will be accepted if elements detected in the blank are present in the associated samples at 20 times the blank level.
- Blanks will be accepted if the compounds/elements detected are not present in any of the associated environmental samples.

Failure to meet these Method Blank criteria requires the reparation and reanalysis of all samples in the QC batch.

### **MATRIX SPIKE/MATRIX SPIKE DUPLICATE**

A Matrix Spike and a Matrix Spike Duplicate are a pair of environmental samples to which known concentrations of a full or partial set of target analytes are added. The MS/MSD results are determined in the same manner as the results of the environmental sample used to prepare the MS/MSD. The analyte recoveries and the relative percent differences (RPDs) of the recoveries are calculated and used to evaluate the effect of the sample matrix on the analytical results. Due to the potential variability of the matrix of each sample, the MS/MSD results may not have an immediate bearing on any samples except the one spiked; therefore, the associated batch MS/MSD may not reflect the same compounds as the samples contained in the analytical report. When these MS/MSD results fail to meet acceptance criteria, the data is evaluated. If the LCS is within acceptance criteria, the batch is considered acceptable.

For certain methods, a Matrix Spike/Sample Duplicate (MS/DU) may be included in the QC batch in place of the MS/MSD. For the parameters (i.e. pH, ignitability) where it is not possible to prepare a spiked sample, a Sample Duplicate may be included in the QC batch. However, a Sample Duplicate is less likely to provide usable precision statistics depending on the likelihood of finding concentrations below the standard reporting limit. When the Sample Duplicate result fails to meet acceptance criteria, the data is evaluated.

For certain methods (600 series methods/CWA), a Matrix Spike is required in place of a Matrix Spike/Matrix Spike Duplicate (MS/MSD) or Matrix Spike/Sample Duplicate (MS/DU).

The acceptance criteria do not apply to samples that are diluted.

### **SURROGATE COMPOUNDS**

In addition to these batch-related QC indicators, each organic environmental and QC sample is spiked with surrogate compounds. Surrogates are organic chemicals that behave similarly to the analytes of interest and that are rarely present in the environment. Surrogate recoveries are used to monitor the individual performance of a sample in the analytical system.

If surrogate recoveries are biased high in the LCS, LCSD, or the Method Blank, and the associated sample(s) are ND, the batch is acceptable. Otherwise, if the LCS, LCSD, or Method Blank surrogate(s) fail to meet recovery criteria, the entire sample batch is reprepared and reanalyzed. If the surrogate recoveries are outside criteria for environmental samples, the samples will be reprepared and reanalyzed unless there is objective evidence of matrix interference or if the sample dilution is greater than the threshold outlined in the associated method SOP.

The acceptance criteria do not apply to samples that are diluted. All other surrogate recoveries will be reported.

For the GC/MS BNA methods, the surrogate criterion is that two of the three surrogates for each fraction must meet acceptance criteria. The third surrogate must have a recovery of ten percent or greater.

For the Pesticide and PCB methods, the surrogate criterion is that one of two surrogate compounds must meet acceptance criteria. The second surrogate must have a recovery of 10% or greater.



### **TestAmerica Certifications and Approvals:**

The laboratory is certified for the analytes listed on the documents below. These are available upon request.  
California (#01144CA), Connecticut (#PH-0590), Florida (#E87225),  
Illinois (#200004), Kansas (#E10336), Minnesota (#39-999-348), New Jersey (#OH001), New York (#10975), Nevada  
(#OH-000482008A), OhioVAP (#CL0024), Pennsylvania (#008), West Virginia (#210), Wisconsin (#999518190), NAVY,  
ARMY, USDA Soil Permit

## EXECUTIVE SUMMARY - Detection Highlights

A0C050473

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
<b>GW-030410-JL-71 03/04/10 09:10 001</b>				
Tetrachloroethene	2.3	1.0	ug/L	SW846 8260B
1,1,1-Trichloroethane	1.6	1.0	ug/L	SW846 8260B
<b>GW-030410-JL-72 03/04/10 10:25 002</b>				
1,1,1-Trichloroethane	0.29 J	1.0	ug/L	SW846 8260B
<b>GW-030410-JL-73 03/04/10 11:35 003</b>				
Tetrachloroethene	0.37 J	1.0	ug/L	SW846 8260B
<b>GW-030410-JL-74 03/04/10 11:55 004</b>				
Methylene chloride	0.69 J,B	1.0	ug/L	SW846 8260B
<b>GW-030410-JL-75 03/04/10 13:45 005</b>				
Tetrachloroethene	2.5	1.0	ug/L	SW846 8260B
1,1,1-Trichloroethane	0.58 J	1.0	ug/L	SW846 8260B
Trichloroethene	0.83 J	1.0	ug/L	SW846 8260B
<b>GW-030410-JL-76 03/04/10 15:20 006</b>				
Tetrachloroethene	0.63 J	1.0	ug/L	SW846 8260B
1,1,1-Trichloroethane	0.91 J	1.0	ug/L	SW846 8260B
Trichloroethene	2.1	1.0	ug/L	SW846 8260B
<b>GW-030410-JL-77 03/04/10 15:30 007</b>				
Tetrachloroethene	0.65 J	1.0	ug/L	SW846 8260B
1,1,1-Trichloroethane	0.89 J	1.0	ug/L	SW846 8260B
Trichloroethene	2.2	1.0	ug/L	SW846 8260B
<b>TRIP BLANK 03/04/10 008</b>				
Methylene chloride	0.50 J,B	1.0	ug/L	SW846 8260B

# ANALYTICAL METHODS SUMMARY

A0C050473

<u>PARAMETER</u>	<u>ANALYTICAL METHOD</u>
Volatile Organics by GC/MS	SW846 8260B

## References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

## SAMPLE SUMMARY

A0C050473

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
LWCJF	001	GW-030410-JL-71	03/04/10	09:10
LWCJJ	002	GW-030410-JL-72	03/04/10	10:25
LWCJL	003	GW-030410-JL-73	03/04/10	11:35
LWCJN	004	GW-030410-JL-74	03/04/10	11:55
LWCJP	005	GW-030410-JL-75	03/04/10	13:45
LWCJQ	006	GW-030410-JL-76	03/04/10	15:20
LWCJR	007	GW-030410-JL-77	03/04/10	15:30
LWCJT	008	TRIP BLANK	03/04/10	

### NOTE(S) :

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

Conestoga-Rovers & Associates, Inc.

Client Sample ID: GW-030410-JL-71

GC/MS Volatiles

Lot-Sample #...: A0C050473-001 Work Order #...: LWCJF1AA Matrix.....: WG  
 Date Sampled...: 03/04/10 09:10 Date Received...: 03/05/10  
 Prep Date.....: 03/08/10 Analysis Date...: 03/08/10  
 Prep Batch #...: 0068118  
 Dilution Factor: 1 Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING		
		LIMIT	UNITS	MDL
Acetone	ND	10	ug/L	1.1
Benzene	ND	1.0	ug/L	0.13
Bromodichloromethane	ND	1.0	ug/L	0.15
Bromoform	ND	1.0	ug/L	0.64
Bromomethane	ND	1.0	ug/L	0.41
2-Butanone	ND	10	ug/L	0.57
Carbon disulfide	ND	1.0	ug/L	0.13
Carbon tetrachloride	ND	1.0	ug/L	0.13
Chlorobenzene	ND	1.0	ug/L	0.15
Chloroethane	ND	1.0	ug/L	0.29
Chloroform	ND	1.0	ug/L	0.16
Chloromethane	ND	1.0	ug/L	0.30
Cyclohexane	ND	1.0	ug/L	0.12
Dibromochloromethane	ND	1.0	ug/L	0.18
1,2-Dibromo-3-chloro- propane	ND	2.0	ug/L	0.67
1,2-Dibromoethane	ND	1.0	ug/L	0.24
1,2-Dichlorobenzene	ND	1.0	ug/L	0.13
1,3-Dichlorobenzene	ND	1.0	ug/L	0.14
1,4-Dichlorobenzene	ND	1.0	ug/L	0.13
Dichlorodifluoromethane	ND	1.0	ug/L	0.31
1,1-Dichloroethane	ND	1.0	ug/L	0.15
1,2-Dichloroethane	ND	1.0	ug/L	0.22
1,1-Dichloroethene	ND	1.0	ug/L	0.19
cis-1,2-Dichloroethene	ND	1.0	ug/L	0.17
trans-1,2-Dichloroethene	ND	1.0	ug/L	0.19
1,2-Dichloropropane	ND	1.0	ug/L	0.18
cis-1,3-Dichloropropene	ND	1.0	ug/L	0.14
trans-1,3-Dichloropropene	ND	1.0	ug/L	0.19
Ethylbenzene	ND	1.0	ug/L	0.17
2-Hexanone	ND	10	ug/L	0.41
Isopropylbenzene	ND	1.0	ug/L	0.13
Methyl acetate	ND	10	ug/L	0.38
Methylene chloride	ND	1.0	ug/L	0.33
Methylcyclohexane	ND	1.0	ug/L	0.13
4-Methyl-2-pentanone	ND	10	ug/L	0.32
Methyl tert-butyl ether	ND	5.0	ug/L	0.17
Styrene	ND	1.0	ug/L	0.11
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L	0.18

(Continued on next page)

Conestoga-Rovers & Associates, Inc.

Client Sample ID: GW-030410-JL-71

GC/MS Volatiles

Lot-Sample #...: A0C050473-001    Work Order #...: LWCJF1AA    Matrix.....: WG

PARAMETER	RESULT	REPORTING		
		LIMIT	UNITS	MDL
<b>Tetrachloroethene</b>	<b>2.3</b>	<b>1.0</b>	<b>ug/L</b>	<b>0.29</b>
Toluene	ND	1.0	ug/L	0.13
1,2,4-Trichloro- benzene	ND	1.0	ug/L	0.15
<b>1,1,1-Trichloroethane</b>	<b>1.6</b>	<b>1.0</b>	<b>ug/L</b>	<b>0.22</b>
1,1,2-Trichloroethane	ND	1.0	ug/L	0.27
Trichloroethene	ND	1.0	ug/L	0.17
Trichlorofluoromethane	ND	1.0	ug/L	0.21
1,1,2-Trichloro- 1,2,2-trifluoroethane	ND	1.0	ug/L	0.28
Vinyl chloride	ND	1.0	ug/L	0.22
Xylenes (total)	ND	2.0	ug/L	0.28
SURROGATE	PERCENT		RECOVERY	
	RECOVERY		LIMITS	
Dibromofluoromethane	105		(73 - 122)	
1,2-Dichloroethane-d4	102		(61 - 128)	
Toluene-d8	93		(76 - 110)	
4-Bromofluorobenzene	78		(74 - 116)	

Conestoga-Rovers & Associates, Inc.

Client Sample ID: GW-030410-JL-72

GC/MS Volatiles

Lot-Sample #...: A0C050473-002 Work Order #...: LWCJJ1AA Matrix.....: WG  
 Date Sampled...: 03/04/10 10:25 Date Received...: 03/05/10  
 Prep Date.....: 03/08/10 Analysis Date...: 03/08/10  
 Prep Batch #...: 0068118  
 Dilution Factor: 1 Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING		
		LIMIT	UNITS	MDL
Acetone	ND	10	ug/L	1.1
Benzene	ND	1.0	ug/L	0.13
Bromodichloromethane	ND	1.0	ug/L	0.15
Bromoform	ND	1.0	ug/L	0.64
Bromomethane	ND	1.0	ug/L	0.41
2-Butanone	ND	10	ug/L	0.57
Carbon disulfide	ND	1.0	ug/L	0.13
Carbon tetrachloride	ND	1.0	ug/L	0.13
Chlorobenzene	ND	1.0	ug/L	0.15
Chloroethane	ND	1.0	ug/L	0.29
Chloroform	ND	1.0	ug/L	0.16
Chloromethane	ND	1.0	ug/L	0.30
Cyclohexane	ND	1.0	ug/L	0.12
Dibromochloromethane	ND	1.0	ug/L	0.18
1,2-Dibromo-3-chloro- propane	ND	2.0	ug/L	0.67
1,2-Dibromoethane	ND	1.0	ug/L	0.24
1,2-Dichlorobenzene	ND	1.0	ug/L	0.13
1,3-Dichlorobenzene	ND	1.0	ug/L	0.14
1,4-Dichlorobenzene	ND	1.0	ug/L	0.13
Dichlorodifluoromethane	ND	1.0	ug/L	0.31
1,1-Dichloroethane	ND	1.0	ug/L	0.15
1,2-Dichloroethane	ND	1.0	ug/L	0.22
1,1-Dichloroethene	ND	1.0	ug/L	0.19
cis-1,2-Dichloroethene	ND	1.0	ug/L	0.17
trans-1,2-Dichloroethene	ND	1.0	ug/L	0.19
1,2-Dichloropropane	ND	1.0	ug/L	0.18
cis-1,3-Dichloropropene	ND	1.0	ug/L	0.14
trans-1,3-Dichloropropene	ND	1.0	ug/L	0.19
Ethylbenzene	ND	1.0	ug/L	0.17
2-Hexanone	ND	10	ug/L	0.41
Isopropylbenzene	ND	1.0	ug/L	0.13
Methyl acetate	ND	10	ug/L	0.38
Methylene chloride	ND	1.0	ug/L	0.33
Methylcyclohexane	ND	1.0	ug/L	0.13
4-Methyl-2-pentanone	ND	10	ug/L	0.32
Methyl tert-butyl ether	ND	5.0	ug/L	0.17
Styrene	ND	1.0	ug/L	0.11
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L	0.18

(Continued on next page)



Conestoga-Rovers & Associates, Inc.

Client Sample ID: GW-030410-JL-72

GC/MS Volatiles

Lot-Sample #...: A0C050473-002    Work Order #...: LWCJJ1AA    Matrix.....: WG

PARAMETER	RESULT	REPORTING		
		LIMIT	UNITS	MDL
Tetrachloroethene	ND	1.0	ug/L	0.29
Toluene	ND	1.0	ug/L	0.13
1,2,4-Trichloro- benzene	ND	1.0	ug/L	0.15
<b>1,1,1-Trichloroethane</b>	<b>0.29 J</b>	<b>1.0</b>	<b>ug/L</b>	<b>0.22</b>
1,1,2-Trichloroethane	ND	1.0	ug/L	0.27
Trichloroethene	ND	1.0	ug/L	0.17
Trichlorofluoromethane	ND	1.0	ug/L	0.21
1,1,2-Trichloro- 1,2,2-trifluoroethane	ND	1.0	ug/L	0.28
Vinyl chloride	ND	1.0	ug/L	0.22
Xylenes (total)	ND	2.0	ug/L	0.28

SURROGATE	PERCENT		RECOVERY	
	RECOVERY		LIMITS	
Dibromofluoromethane	104		(73 - 122)	
1,2-Dichloroethane-d4	98		(61 - 128)	
Toluene-d8	89		(76 - 110)	
4-Bromofluorobenzene	75		(74 - 116)	

**NOTE(S):**

J Estimated result. Result is less than RL.

Conestoga-Rovers & Associates, Inc.

Client Sample ID: GW-030410-JL-73

GC/MS Volatiles

Lot-Sample #...: A0C050473-003 Work Order #...: LWCJL1AA Matrix.....: WG  
 Date Sampled...: 03/04/10 11:35 Date Received...: 03/05/10  
 Prep Date.....: 03/09/10 Analysis Date...: 03/09/10  
 Prep Batch #...: 0071154  
 Dilution Factor: 1 Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING		
		LIMIT	UNITS	MDL
Acetone	ND	10	ug/L	1.1
Benzene	ND	1.0	ug/L	0.13
Bromodichloromethane	ND	1.0	ug/L	0.15
Bromoform	ND	1.0	ug/L	0.64
Bromomethane	ND	1.0	ug/L	0.41
2-Butanone	ND	10	ug/L	0.57
Carbon disulfide	ND	1.0	ug/L	0.13
Carbon tetrachloride	ND	1.0	ug/L	0.13
Chlorobenzene	ND	1.0	ug/L	0.15
Chloroethane	ND	1.0	ug/L	0.29
Chloroform	ND	1.0	ug/L	0.16
Chloromethane	ND	1.0	ug/L	0.30
Cyclohexane	ND	1.0	ug/L	0.12
Dibromochloromethane	ND	1.0	ug/L	0.18
1,2-Dibromo-3-chloro- propane	ND	2.0	ug/L	0.67
1,2-Dibromoethane	ND	1.0	ug/L	0.24
1,2-Dichlorobenzene	ND	1.0	ug/L	0.13
1,3-Dichlorobenzene	ND	1.0	ug/L	0.14
1,4-Dichlorobenzene	ND	1.0	ug/L	0.13
Dichlorodifluoromethane	ND	1.0	ug/L	0.31
1,1-Dichloroethane	ND	1.0	ug/L	0.15
1,2-Dichloroethane	ND	1.0	ug/L	0.22
1,1-Dichloroethene	ND	1.0	ug/L	0.19
cis-1,2-Dichloroethene	ND	1.0	ug/L	0.17
trans-1,2-Dichloroethene	ND	1.0	ug/L	0.19
1,2-Dichloropropane	ND	1.0	ug/L	0.18
cis-1,3-Dichloropropene	ND	1.0	ug/L	0.14
trans-1,3-Dichloropropene	ND	1.0	ug/L	0.19
Ethylbenzene	ND	1.0	ug/L	0.17
2-Hexanone	ND	10	ug/L	0.41
Isopropylbenzene	ND	1.0	ug/L	0.13
Methyl acetate	ND	10	ug/L	0.38
Methylene chloride	ND	1.0	ug/L	0.33
Methylcyclohexane	ND	1.0	ug/L	0.13
4-Methyl-2-pentanone	ND	10	ug/L	0.32
Methyl tert-butyl ether	ND	5.0	ug/L	0.17
Styrene	ND	1.0	ug/L	0.11
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L	0.18

(Continued on next page)

Conestoga-Rovers & Associates, Inc.

Client Sample ID: GW-030410-JL-73

GC/MS Volatiles

Lot-Sample #...: A0C050473-003    Work Order #...: LWCJL1AA    Matrix.....: WG

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
<b>Tetrachloroethene</b>	<b>0.37 J</b>	<b>1.0</b>	<b>ug/L</b>	<b>0.29</b>
Toluene	ND	1.0	ug/L	0.13
1,2,4-Trichloro- benzene	ND	1.0	ug/L	0.15
1,1,1-Trichloroethane	ND	1.0	ug/L	0.22
1,1,2-Trichloroethane	ND	1.0	ug/L	0.27
Trichloroethene	ND	1.0	ug/L	0.17
Trichlorofluoromethane	ND	1.0	ug/L	0.21
1,1,2-Trichloro- 1,2,2-trifluoroethane	ND	1.0	ug/L	0.28
Vinyl chloride	ND	1.0	ug/L	0.22
Xylenes (total)	ND	2.0	ug/L	0.28
SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS		
Dibromofluoromethane	100	(73 - 122)		
1,2-Dichloroethane-d4	88	(61 - 128)		
Toluene-d8	93	(76 - 110)		
4-Bromofluorobenzene	74	(74 - 116)		

**NOTE(S):**

J Estimated result. Result is less than RL.

Conestoga-Rovers & Associates, Inc.

Client Sample ID: GW-030410-JL-74

GC/MS Volatiles

Lot-Sample #...: A0C050473-004 Work Order #...: LWCJN1AA Matrix.....: WG  
 Date Sampled...: 03/04/10 11:55 Date Received...: 03/05/10  
 Prep Date.....: 03/08/10 Analysis Date...: 03/08/10  
 Prep Batch #...: 0068118  
 Dilution Factor: 1 Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING		
		LIMIT	UNITS	MDL
Acetone	ND	10	ug/L	1.1
Benzene	ND	1.0	ug/L	0.13
Bromodichloromethane	ND	1.0	ug/L	0.15
Bromoform	ND	1.0	ug/L	0.64
Bromomethane	ND	1.0	ug/L	0.41
2-Butanone	ND	10	ug/L	0.57
Carbon disulfide	ND	1.0	ug/L	0.13
Carbon tetrachloride	ND	1.0	ug/L	0.13
Chlorobenzene	ND	1.0	ug/L	0.15
Chloroethane	ND	1.0	ug/L	0.29
Chloroform	ND	1.0	ug/L	0.16
Chloromethane	ND	1.0	ug/L	0.30
Cyclohexane	ND	1.0	ug/L	0.12
Dibromochloromethane	ND	1.0	ug/L	0.18
1,2-Dibromo-3-chloro- propane	ND	2.0	ug/L	0.67
1,2-Dibromoethane	ND	1.0	ug/L	0.24
1,2-Dichlorobenzene	ND	1.0	ug/L	0.13
1,3-Dichlorobenzene	ND	1.0	ug/L	0.14
1,4-Dichlorobenzene	ND	1.0	ug/L	0.13
Dichlorodifluoromethane	ND	1.0	ug/L	0.31
1,1-Dichloroethane	ND	1.0	ug/L	0.15
1,2-Dichloroethane	ND	1.0	ug/L	0.22
1,1-Dichloroethene	ND	1.0	ug/L	0.19
cis-1,2-Dichloroethene	ND	1.0	ug/L	0.17
trans-1,2-Dichloroethene	ND	1.0	ug/L	0.19
1,2-Dichloropropane	ND	1.0	ug/L	0.18
cis-1,3-Dichloropropene	ND	1.0	ug/L	0.14
trans-1,3-Dichloropropene	ND	1.0	ug/L	0.19
Ethylbenzene	ND	1.0	ug/L	0.17
2-Hexanone	ND	10	ug/L	0.41
Isopropylbenzene	ND	1.0	ug/L	0.13
Methyl acetate	ND	10	ug/L	0.38
<b>Methylene chloride</b>	<b>0.69 J,B</b>	<b>1.0</b>	<b>ug/L</b>	<b>0.33</b>
Methylcyclohexane	ND	1.0	ug/L	0.13
4-Methyl-2-pentanone	ND	10	ug/L	0.32
Methyl tert-butyl ether	ND	5.0	ug/L	0.17
Styrene	ND	1.0	ug/L	0.11
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L	0.18

(Continued on next page)

Conestoga-Rovers & Associates, Inc.

Client Sample ID: GW-030410-JL-74

GC/MS Volatiles

Lot-Sample #...: A0C050473-004 Work Order #...: LWCJN1AA Matrix.....: WG

PARAMETER	RESULT	REPORTING		
		LIMIT	UNITS	MDL
Tetrachloroethene	ND	1.0	ug/L	0.29
Toluene	ND	1.0	ug/L	0.13
1,2,4-Trichloro- benzene	ND	1.0	ug/L	0.15
1,1,1-Trichloroethane	ND	1.0	ug/L	0.22
1,1,2-Trichloroethane	ND	1.0	ug/L	0.27
Trichloroethene	ND	1.0	ug/L	0.17
Trichlorofluoromethane	ND	1.0	ug/L	0.21
1,1,2-Trichloro- 1,2,2-trifluoroethane	ND	1.0	ug/L	0.28
Vinyl chloride	ND	1.0	ug/L	0.22
Xylenes (total)	ND	2.0	ug/L	0.28

SURROGATE	PERCENT		RECOVERY	
	RECOVERY		LIMITS	
Dibromofluoromethane	103		(73 - 122)	
1,2-Dichloroethane-d4	99		(61 - 128)	
Toluene-d8	93		(76 - 110)	
4-Bromofluorobenzene	76		(74 - 116)	

**NOTE(S):**

J Estimated result. Result is less than RL.

B Method blank contamination. The associated method blank contains the target analyte at a reportable level.

Conestoga-Rovers & Associates, Inc.

Client Sample ID: GW-030410-JL-75

GC/MS Volatiles

Lot-Sample #...: A0C050473-005 Work Order #...: LWCJP1AA Matrix.....: WG  
 Date Sampled...: 03/04/10 13:45 Date Received...: 03/05/10  
 Prep Date.....: 03/08/10 Analysis Date...: 03/08/10  
 Prep Batch #...: 0068118  
 Dilution Factor: 1 Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING		
		LIMIT	UNITS	MDL
Acetone	ND	10	ug/L	1.1
Benzene	ND	1.0	ug/L	0.13
Bromodichloromethane	ND	1.0	ug/L	0.15
Bromoform	ND	1.0	ug/L	0.64
Bromomethane	ND	1.0	ug/L	0.41
2-Butanone	ND	10	ug/L	0.57
Carbon disulfide	ND	1.0	ug/L	0.13
Carbon tetrachloride	ND	1.0	ug/L	0.13
Chlorobenzene	ND	1.0	ug/L	0.15
Chloroethane	ND	1.0	ug/L	0.29
Chloroform	ND	1.0	ug/L	0.16
Chloromethane	ND	1.0	ug/L	0.30
Cyclohexane	ND	1.0	ug/L	0.12
Dibromochloromethane	ND	1.0	ug/L	0.18
1,2-Dibromo-3-chloro- propane	ND	2.0	ug/L	0.67
1,2-Dibromoethane	ND	1.0	ug/L	0.24
1,2-Dichlorobenzene	ND	1.0	ug/L	0.13
1,3-Dichlorobenzene	ND	1.0	ug/L	0.14
1,4-Dichlorobenzene	ND	1.0	ug/L	0.13
Dichlorodifluoromethane	ND	1.0	ug/L	0.31
1,1-Dichloroethane	ND	1.0	ug/L	0.15
1,2-Dichloroethane	ND	1.0	ug/L	0.22
1,1-Dichloroethene	ND	1.0	ug/L	0.19
cis-1,2-Dichloroethene	ND	1.0	ug/L	0.17
trans-1,2-Dichloroethene	ND	1.0	ug/L	0.19
1,2-Dichloropropane	ND	1.0	ug/L	0.18
cis-1,3-Dichloropropene	ND	1.0	ug/L	0.14
trans-1,3-Dichloropropene	ND	1.0	ug/L	0.19
Ethylbenzene	ND	1.0	ug/L	0.17
2-Hexanone	ND	10	ug/L	0.41
Isopropylbenzene	ND	1.0	ug/L	0.13
Methyl acetate	ND	10	ug/L	0.38
Methylene chloride	ND	1.0	ug/L	0.33
Methylcyclohexane	ND	1.0	ug/L	0.13
4-Methyl-2-pentanone	ND	10	ug/L	0.32
Methyl tert-butyl ether	ND	5.0	ug/L	0.17
Styrene	ND	1.0	ug/L	0.11
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L	0.18

(Continued on next page)

Conestoga-Rovers & Associates, Inc.

Client Sample ID: GW-030410-JL-75

GC/MS Volatiles

Lot-Sample #...: A0C050473-005    Work Order #...: LWCJP1AA    Matrix.....: WG

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
<b>Tetrachloroethene</b>	<b>2.5</b>	<b>1.0</b>	<b>ug/L</b>	<b>0.29</b>
Toluene	ND	1.0	ug/L	0.13
1,2,4-Trichloro- benzene	ND	1.0	ug/L	0.15
<b>1,1,1-Trichloroethane</b>	<b>0.58 J</b>	<b>1.0</b>	<b>ug/L</b>	<b>0.22</b>
1,1,2-Trichloroethane	ND	1.0	ug/L	0.27
<b>Trichloroethene</b>	<b>0.83 J</b>	<b>1.0</b>	<b>ug/L</b>	<b>0.17</b>
Trichlorofluoromethane	ND	1.0	ug/L	0.21
1,1,2-Trichloro- 1,2,2-trifluoroethane	ND	1.0	ug/L	0.28
Vinyl chloride	ND	1.0	ug/L	0.22
Xylenes (total)	ND	2.0	ug/L	0.28
SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS		
Dibromofluoromethane	110	(73 - 122)		
1,2-Dichloroethane-d4	101	(61 - 128)		
Toluene-d8	94	(76 - 110)		
4-Bromofluorobenzene	75	(74 - 116)		

**NOTE(S):**

J Estimated result. Result is less than RL.

Conestoga-Rovers & Associates, Inc.

Client Sample ID: GW-030410-JL-76

GC/MS Volatiles

Lot-Sample #...: A0C050473-006 Work Order #...: LWCJQ1AA Matrix.....: WG  
 Date Sampled...: 03/04/10 15:20 Date Received...: 03/05/10  
 Prep Date.....: 03/08/10 Analysis Date...: 03/08/10  
 Prep Batch #...: 0068118  
 Dilution Factor: 1 Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING		
		LIMIT	UNITS	MDL
Acetone	ND	10	ug/L	1.1
Benzene	ND	1.0	ug/L	0.13
Bromodichloromethane	ND	1.0	ug/L	0.15
Bromoform	ND	1.0	ug/L	0.64
Bromomethane	ND	1.0	ug/L	0.41
2-Butanone	ND	10	ug/L	0.57
Carbon disulfide	ND	1.0	ug/L	0.13
Carbon tetrachloride	ND	1.0	ug/L	0.13
Chlorobenzene	ND	1.0	ug/L	0.15
Chloroethane	ND	1.0	ug/L	0.29
Chloroform	ND	1.0	ug/L	0.16
Chloromethane	ND	1.0	ug/L	0.30
Cyclohexane	ND	1.0	ug/L	0.12
Dibromochloromethane	ND	1.0	ug/L	0.18
1,2-Dibromo-3-chloro- propane	ND	2.0	ug/L	0.67
1,2-Dibromoethane	ND	1.0	ug/L	0.24
1,2-Dichlorobenzene	ND	1.0	ug/L	0.13
1,3-Dichlorobenzene	ND	1.0	ug/L	0.14
1,4-Dichlorobenzene	ND	1.0	ug/L	0.13
Dichlorodifluoromethane	ND	1.0	ug/L	0.31
1,1-Dichloroethane	ND	1.0	ug/L	0.15
1,2-Dichloroethane	ND	1.0	ug/L	0.22
1,1-Dichloroethene	ND	1.0	ug/L	0.19
cis-1,2-Dichloroethene	ND	1.0	ug/L	0.17
trans-1,2-Dichloroethene	ND	1.0	ug/L	0.19
1,2-Dichloropropane	ND	1.0	ug/L	0.18
cis-1,3-Dichloropropene	ND	1.0	ug/L	0.14
trans-1,3-Dichloropropene	ND	1.0	ug/L	0.19
Ethylbenzene	ND	1.0	ug/L	0.17
2-Hexanone	ND	10	ug/L	0.41
Isopropylbenzene	ND	1.0	ug/L	0.13
Methyl acetate	ND	10	ug/L	0.38
Methylene chloride	ND	1.0	ug/L	0.33
Methylcyclohexane	ND	1.0	ug/L	0.13
4-Methyl-2-pentanone	ND	10	ug/L	0.32
Methyl tert-butyl ether	ND	5.0	ug/L	0.17
Styrene	ND	1.0	ug/L	0.11
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L	0.18

(Continued on next page)



Conestoga-Rovers & Associates, Inc.

Client Sample ID: GW-030410-JL-76

GC/MS Volatiles

Lot-Sample #...: A0C050473-006    Work Order #...: LWCJQ1AA    Matrix.....: WG

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
<b>Tetrachloroethene</b>	<b>0.63 J</b>	<b>1.0</b>	<b>ug/L</b>	<b>0.29</b>
Toluene	ND	1.0	ug/L	0.13
1,2,4-Trichloro- benzene	ND	1.0	ug/L	0.15
<b>1,1,1-Trichloroethane</b>	<b>0.91 J</b>	<b>1.0</b>	<b>ug/L</b>	<b>0.22</b>
1,1,2-Trichloroethane	ND	1.0	ug/L	0.27
<b>Trichloroethene</b>	<b>2.1</b>	<b>1.0</b>	<b>ug/L</b>	<b>0.17</b>
Trichlorofluoromethane	ND	1.0	ug/L	0.21
1,1,2-Trichloro- 1,2,2-trifluoroethane	ND	1.0	ug/L	0.28
Vinyl chloride	ND	1.0	ug/L	0.22
Xylenes (total)	ND	2.0	ug/L	0.28

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	102	(73 - 122)
1,2-Dichloroethane-d4	99	(61 - 128)
Toluene-d8	90	(76 - 110)
4-Bromofluorobenzene	75	(74 - 116)

**NOTE(S):**

J Estimated result. Result is less than RL.

Conestoga-Rovers & Associates, Inc.

Client Sample ID: GW-030410-JL-77

GC/MS Volatiles

Lot-Sample #...: A0C050473-007 Work Order #...: LWCJR1AA Matrix.....: WG  
 Date Sampled...: 03/04/10 15:30 Date Received...: 03/05/10  
 Prep Date.....: 03/08/10 Analysis Date...: 03/08/10  
 Prep Batch #...: 0068118  
 Dilution Factor: 1 Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING		
		LIMIT	UNITS	MDL
Acetone	ND	10	ug/L	1.1
Benzene	ND	1.0	ug/L	0.13
Bromodichloromethane	ND	1.0	ug/L	0.15
Bromoform	ND	1.0	ug/L	0.64
Bromomethane	ND	1.0	ug/L	0.41
2-Butanone	ND	10	ug/L	0.57
Carbon disulfide	ND	1.0	ug/L	0.13
Carbon tetrachloride	ND	1.0	ug/L	0.13
Chlorobenzene	ND	1.0	ug/L	0.15
Chloroethane	ND	1.0	ug/L	0.29
Chloroform	ND	1.0	ug/L	0.16
Chloromethane	ND	1.0	ug/L	0.30
Cyclohexane	ND	1.0	ug/L	0.12
Dibromochloromethane	ND	1.0	ug/L	0.18
1,2-Dibromo-3-chloro- propane	ND	2.0	ug/L	0.67
1,2-Dibromoethane	ND	1.0	ug/L	0.24
1,2-Dichlorobenzene	ND	1.0	ug/L	0.13
1,3-Dichlorobenzene	ND	1.0	ug/L	0.14
1,4-Dichlorobenzene	ND	1.0	ug/L	0.13
Dichlorodifluoromethane	ND	1.0	ug/L	0.31
1,1-Dichloroethane	ND	1.0	ug/L	0.15
1,2-Dichloroethane	ND	1.0	ug/L	0.22
1,1-Dichloroethene	ND	1.0	ug/L	0.19
cis-1,2-Dichloroethene	ND	1.0	ug/L	0.17
trans-1,2-Dichloroethene	ND	1.0	ug/L	0.19
1,2-Dichloropropane	ND	1.0	ug/L	0.18
cis-1,3-Dichloropropene	ND	1.0	ug/L	0.14
trans-1,3-Dichloropropene	ND	1.0	ug/L	0.19
Ethylbenzene	ND	1.0	ug/L	0.17
2-Hexanone	ND	10	ug/L	0.41
Isopropylbenzene	ND	1.0	ug/L	0.13
Methyl acetate	ND	10	ug/L	0.38
Methylene chloride	ND	1.0	ug/L	0.33
Methylcyclohexane	ND	1.0	ug/L	0.13
4-Methyl-2-pentanone	ND	10	ug/L	0.32
Methyl tert-butyl ether	ND	5.0	ug/L	0.17
Styrene	ND	1.0	ug/L	0.11
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L	0.18

(Continued on next page)

Conestoga-Rovers & Associates, Inc.

Client Sample ID: GW-030410-JL-77

GC/MS Volatiles

Lot-Sample #...: A0C050473-007    Work Order #...: LWCJR1AA    Matrix.....: WG

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
<b>Tetrachloroethene</b>	<b>0.65 J</b>	<b>1.0</b>	<b>ug/L</b>	<b>0.29</b>
Toluene	ND	1.0	ug/L	0.13
1,2,4-Trichloro- benzene	ND	1.0	ug/L	0.15
<b>1,1,1-Trichloroethane</b>	<b>0.89 J</b>	<b>1.0</b>	<b>ug/L</b>	<b>0.22</b>
1,1,2-Trichloroethane	ND	1.0	ug/L	0.27
<b>Trichloroethene</b>	<b>2.2</b>	<b>1.0</b>	<b>ug/L</b>	<b>0.17</b>
Trichlorofluoromethane	ND	1.0	ug/L	0.21
1,1,2-Trichloro- 1,2,2-trifluoroethane	ND	1.0	ug/L	0.28
Vinyl chloride	ND	1.0	ug/L	0.22
Xylenes (total)	ND	2.0	ug/L	0.28

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	105	(73 - 122)
1,2-Dichloroethane-d4	97	(61 - 128)
Toluene-d8	94	(76 - 110)
4-Bromofluorobenzene	77	(74 - 116)

**NOTE(S):**

J Estimated result. Result is less than RL.

Conestoga-Rovers & Associates, Inc.

Client Sample ID: TRIP BLANK

GC/MS Volatiles

Lot-Sample #...: A0C050473-008      Work Order #...: LWCJT1AA      Matrix.....: WQ  
 Date Sampled...: 03/04/10      Date Received...: 03/05/10  
 Prep Date.....: 03/08/10      Analysis Date...: 03/08/10  
 Prep Batch #...: 0068118  
 Dilution Factor: 1      Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING		
		LIMIT	UNITS	MDL
Acetone	ND	10	ug/L	1.1
Benzene	ND	1.0	ug/L	0.13
Bromodichloromethane	ND	1.0	ug/L	0.15
Bromoform	ND	1.0	ug/L	0.64
Bromomethane	ND	1.0	ug/L	0.41
2-Butanone	ND	10	ug/L	0.57
Carbon disulfide	ND	1.0	ug/L	0.13
Carbon tetrachloride	ND	1.0	ug/L	0.13
Chlorobenzene	ND	1.0	ug/L	0.15
Chloroethane	ND	1.0	ug/L	0.29
Chloroform	ND	1.0	ug/L	0.16
Chloromethane	ND	1.0	ug/L	0.30
Cyclohexane	ND	1.0	ug/L	0.12
Dibromochloromethane	ND	1.0	ug/L	0.18
1,2-Dibromo-3-chloro- propane	ND	2.0	ug/L	0.67
1,2-Dibromoethane	ND	1.0	ug/L	0.24
1,2-Dichlorobenzene	ND	1.0	ug/L	0.13
1,3-Dichlorobenzene	ND	1.0	ug/L	0.14
1,4-Dichlorobenzene	ND	1.0	ug/L	0.13
Dichlorodifluoromethane	ND	1.0	ug/L	0.31
1,1-Dichloroethane	ND	1.0	ug/L	0.15
1,2-Dichloroethane	ND	1.0	ug/L	0.22
1,1-Dichloroethene	ND	1.0	ug/L	0.19
cis-1,2-Dichloroethene	ND	1.0	ug/L	0.17
trans-1,2-Dichloroethene	ND	1.0	ug/L	0.19
1,2-Dichloropropane	ND	1.0	ug/L	0.18
cis-1,3-Dichloropropene	ND	1.0	ug/L	0.14
trans-1,3-Dichloropropene	ND	1.0	ug/L	0.19
Ethylbenzene	ND	1.0	ug/L	0.17
2-Hexanone	ND	10	ug/L	0.41
Isopropylbenzene	ND	1.0	ug/L	0.13
Methyl acetate	ND	10	ug/L	0.38
<b>Methylene chloride</b>	<b>0.50 J,B</b>	<b>1.0</b>	<b>ug/L</b>	<b>0.33</b>
Methylcyclohexane	ND	1.0	ug/L	0.13
4-Methyl-2-pentanone	ND	10	ug/L	0.32
Methyl tert-butyl ether	ND	5.0	ug/L	0.17
Styrene	ND	1.0	ug/L	0.11
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L	0.18

(Continued on next page)

Conestoga-Rovers & Associates, Inc.

Client Sample ID: TRIP BLANK

GC/MS Volatiles

Lot-Sample #...: A0C050473-008 Work Order #...: LWCJT1AA Matrix.....: WQ

PARAMETER	RESULT	REPORTING		
		LIMIT	UNITS	MDL
Tetrachloroethene	ND	1.0	ug/L	0.29
Toluene	ND	1.0	ug/L	0.13
1,2,4-Trichloro- benzene	ND	1.0	ug/L	0.15
1,1,1-Trichloroethane	ND	1.0	ug/L	0.22
1,1,2-Trichloroethane	ND	1.0	ug/L	0.27
Trichloroethene	ND	1.0	ug/L	0.17
Trichlorofluoromethane	ND	1.0	ug/L	0.21
1,1,2-Trichloro- 1,2,2-trifluoroethane	ND	1.0	ug/L	0.28
Vinyl chloride	ND	1.0	ug/L	0.22
Xylenes (total)	ND	2.0	ug/L	0.28

SURROGATE	PERCENT		RECOVERY	
	RECOVERY		LIMITS	
Dibromofluoromethane	107		(73 - 122)	
1,2-Dichloroethane-d4	100		(61 - 128)	
Toluene-d8	94		(76 - 110)	
4-Bromofluorobenzene	76		(74 - 116)	

**NOTE(S):**

J Estimated result. Result is less than RL.

B Method blank contamination. The associated method blank contains the target analyte at a reportable level.

# ***QUALITY CONTROL SECTION***

# METHOD BLANK REPORT

## GC/MS Volatiles

Client Lot #...: A0C050473  
MB Lot-Sample #: A0C090000-118

Work Order #...: LWE121AA

Matrix.....: WATER

Prep Date.....: 03/08/10

Analysis Date...: 03/08/10

Prep Batch #...: 0068118

Dilution Factor: 1

PARAMETER	RESULT	REPORTING			METHOD
		LIMIT	UNITS		
Acetone	ND	10	ug/L	SW846	8260B
Benzene	ND	1.0	ug/L	SW846	8260B
Bromodichloromethane	ND	1.0	ug/L	SW846	8260B
Bromoform	ND	1.0	ug/L	SW846	8260B
Bromomethane	ND	1.0	ug/L	SW846	8260B
2-Butanone	ND	10	ug/L	SW846	8260B
Carbon disulfide	ND	1.0	ug/L	SW846	8260B
Carbon tetrachloride	ND	1.0	ug/L	SW846	8260B
Chlorobenzene	ND	1.0	ug/L	SW846	8260B
Chloroethane	ND	1.0	ug/L	SW846	8260B
Chloroform	ND	1.0	ug/L	SW846	8260B
Chloromethane	ND	1.0	ug/L	SW846	8260B
Cyclohexane	ND	1.0	ug/L	SW846	8260B
Dibromochloromethane	ND	1.0	ug/L	SW846	8260B
1,2-Dibromo-3-chloro-propane	ND	2.0	ug/L	SW846	8260B
1,2-Dibromoethane	ND	1.0	ug/L	SW846	8260B
1,2-Dichlorobenzene	ND	1.0	ug/L	SW846	8260B
1,3-Dichlorobenzene	ND	1.0	ug/L	SW846	8260B
1,4-Dichlorobenzene	ND	1.0	ug/L	SW846	8260B
Dichlorodifluoromethane	ND	1.0	ug/L	SW846	8260B
1,1-Dichloroethane	ND	1.0	ug/L	SW846	8260B
1,2-Dichloroethane	ND	1.0	ug/L	SW846	8260B
1,1-Dichloroethene	ND	1.0	ug/L	SW846	8260B
cis-1,2-Dichloroethene	ND	1.0	ug/L	SW846	8260B
trans-1,2-Dichloroethene	ND	1.0	ug/L	SW846	8260B
1,2-Dichloropropane	ND	1.0	ug/L	SW846	8260B
cis-1,3-Dichloropropene	ND	1.0	ug/L	SW846	8260B
trans-1,3-Dichloropropene	ND	1.0	ug/L	SW846	8260B
Ethylbenzene	ND	1.0	ug/L	SW846	8260B
2-Hexanone	ND	10	ug/L	SW846	8260B
Isopropylbenzene	ND	1.0	ug/L	SW846	8260B
Methyl acetate	ND	10	ug/L	SW846	8260B
<b>Methylene chloride</b>	<b>0.51 J</b>	<b>1.0</b>	<b>ug/L</b>	<b>SW846</b>	<b>8260B</b>
Methylcyclohexane	ND	1.0	ug/L	SW846	8260B
4-Methyl-2-pentanone	ND	10	ug/L	SW846	8260B
Methyl tert-butyl ether	ND	5.0	ug/L	SW846	8260B
Styrene	ND	1.0	ug/L	SW846	8260B
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L	SW846	8260B
Tetrachloroethene	ND	1.0	ug/L	SW846	8260B
Toluene	ND	1.0	ug/L	SW846	8260B

(Continued on next page)

# METHOD BLANK REPORT

## GC/MS Volatiles

Client Lot #...: A0C050473

Work Order #...: LWE121AA

Matrix.....: WATER

PARAMETER	RESULT	REPORTING		METHOD
		LIMIT	UNITS	
1,2,4-Trichloro-benzene	ND	1.0	ug/L	SW846 8260B
1,1,1-Trichloroethane	ND	1.0	ug/L	SW846 8260B
1,1,2-Trichloroethane	ND	1.0	ug/L	SW846 8260B
Trichloroethene	ND	1.0	ug/L	SW846 8260B
Trichlorofluoromethane	ND	1.0	ug/L	SW846 8260B
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	1.0	ug/L	SW846 8260B
Vinyl chloride	ND	1.0	ug/L	SW846 8260B
Xylenes (total)	ND	2.0	ug/L	SW846 8260B

SURROGATE	PERCENT	RECOVERY
	RECOVERY	LIMITS
Dibromofluoromethane	98	(73 - 122)
1,2-Dichloroethane-d4	105	(61 - 128)
Toluene-d8	97	(76 - 110)
4-Bromofluorobenzene	87	(74 - 116)

### NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

J Estimated result. Result is less than RL.



# METHOD BLANK REPORT

## GC/MS Volatiles

Client Lot #...: A0C050473  
MB Lot-Sample #: A0C120000-154

Work Order #...: LWKX51AA

Matrix.....: WATER

Prep Date.....: 03/09/10

Analysis Date...: 03/09/10

Prep Batch #...: 0071154

Dilution Factor: 1

PARAMETER	RESULT	REPORTING			METHOD
		LIMIT	UNITS		
Acetone	ND	10	ug/L	SW846	8260B
Benzene	ND	1.0	ug/L	SW846	8260B
Bromodichloromethane	ND	1.0	ug/L	SW846	8260B
Bromoform	ND	1.0	ug/L	SW846	8260B
Bromomethane	ND	1.0	ug/L	SW846	8260B
2-Butanone	ND	10	ug/L	SW846	8260B
Carbon disulfide	ND	1.0	ug/L	SW846	8260B
Carbon tetrachloride	ND	1.0	ug/L	SW846	8260B
Chlorobenzene	ND	1.0	ug/L	SW846	8260B
Chloroethane	ND	1.0	ug/L	SW846	8260B
Chloroform	ND	1.0	ug/L	SW846	8260B
Chloromethane	ND	1.0	ug/L	SW846	8260B
Cyclohexane	ND	1.0	ug/L	SW846	8260B
Dibromochloromethane	ND	1.0	ug/L	SW846	8260B
1,2-Dibromo-3-chloro-propane	ND	2.0	ug/L	SW846	8260B
1,2-Dibromoethane	ND	1.0	ug/L	SW846	8260B
1,2-Dichlorobenzene	ND	1.0	ug/L	SW846	8260B
1,3-Dichlorobenzene	ND	1.0	ug/L	SW846	8260B
1,4-Dichlorobenzene	ND	1.0	ug/L	SW846	8260B
Dichlorodifluoromethane	ND	1.0	ug/L	SW846	8260B
1,1-Dichloroethane	ND	1.0	ug/L	SW846	8260B
1,2-Dichloroethane	ND	1.0	ug/L	SW846	8260B
1,1-Dichloroethene	ND	1.0	ug/L	SW846	8260B
cis-1,2-Dichloroethene	ND	1.0	ug/L	SW846	8260B
trans-1,2-Dichloroethene	ND	1.0	ug/L	SW846	8260B
1,2-Dichloropropane	ND	1.0	ug/L	SW846	8260B
cis-1,3-Dichloropropene	ND	1.0	ug/L	SW846	8260B
trans-1,3-Dichloropropene	ND	1.0	ug/L	SW846	8260B
Ethylbenzene	ND	1.0	ug/L	SW846	8260B
2-Hexanone	ND	10	ug/L	SW846	8260B
Isopropylbenzene	ND	1.0	ug/L	SW846	8260B
Methyl acetate	ND	10	ug/L	SW846	8260B
<b>Methylene chloride</b>	<b>0.48 J</b>	<b>1.0</b>	<b>ug/L</b>	<b>SW846</b>	<b>8260B</b>
Methylcyclohexane	ND	1.0	ug/L	SW846	8260B
4-Methyl-2-pentanone	ND	10	ug/L	SW846	8260B
Methyl tert-butyl ether	ND	5.0	ug/L	SW846	8260B
Styrene	ND	1.0	ug/L	SW846	8260B
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L	SW846	8260B
Tetrachloroethene	ND	1.0	ug/L	SW846	8260B
Toluene	ND	1.0	ug/L	SW846	8260B

(Continued on next page)

# METHOD BLANK REPORT

## GC/MS Volatiles

Client Lot #...: A0C050473

Work Order #...: LWKX51AA

Matrix.....: WATER

PARAMETER	RESULT	REPORTING		METHOD
		LIMIT	UNITS	
1,2,4-Trichloro-benzene	ND	1.0	ug/L	SW846 8260B
1,1,1-Trichloroethane	ND	1.0	ug/L	SW846 8260B
1,1,2-Trichloroethane	ND	1.0	ug/L	SW846 8260B
Trichloroethene	ND	1.0	ug/L	SW846 8260B
Trichlorofluoromethane	ND	1.0	ug/L	SW846 8260B
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	1.0	ug/L	SW846 8260B
Vinyl chloride	ND	1.0	ug/L	SW846 8260B
Xylenes (total)	ND	2.0	ug/L	SW846 8260B

SURROGATE	PERCENT	RECOVERY
	RECOVERY	LIMITS
Dibromofluoromethane	99	(73 - 122)
1,2-Dichloroethane-d4	85	(61 - 128)
Toluene-d8	92	(76 - 110)
4-Bromofluorobenzene	81	(74 - 116)

### NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

J Estimated result. Result is less than RL.

# LABORATORY CONTROL SAMPLE EVALUATION REPORT

## GC/MS Volatiles

Client Lot #...: A0C050473      Work Order #...: LWE121AC-LCS      Matrix.....: WATER  
 LCS Lot-Sample#: A0C090000-118      LWE121AD-LCSD  
 Prep Date.....: 03/08/10      Analysis Date...: 03/08/10  
 Prep Batch #...: 0068118  
 Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Benzene	100	(80 - 116)			SW846 8260B
	104	(80 - 116)	4.0	(0-20)	SW846 8260B
Chlorobenzene	95	(76 - 117)			SW846 8260B
	96	(76 - 117)	0.97	(0-20)	SW846 8260B
1,1-Dichloroethene	110	(63 - 130)			SW846 8260B
	116	(63 - 130)	5.3	(0-20)	SW846 8260B
Toluene	97	(74 - 119)			SW846 8260B
	99	(74 - 119)	1.5	(0-20)	SW846 8260B
Trichloroethene	90	(75 - 122)			SW846 8260B
	95	(75 - 122)	6.0	(0-20)	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	95	(73 - 122)
	95	(73 - 122)
1,2-Dichloroethane-d4	101	(61 - 128)
	100	(61 - 128)
Toluene-d8	99	(76 - 110)
	95	(76 - 110)
4-Bromofluorobenzene	95	(74 - 116)
	94	(74 - 116)

### NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

# LABORATORY CONTROL SAMPLE EVALUATION REPORT

## GC/MS Volatiles

Client Lot #...: A0C050473      Work Order #...: LWKX51AC-LCS      Matrix.....: WATER  
 LCS Lot-Sample#: A0C120000-154      LWKX51AD-LCSD  
 Prep Date.....: 03/09/10      Analysis Date...: 03/09/10  
 Prep Batch #...: 0071154  
 Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Benzene	94	(80 - 116)			SW846 8260B
	98	(80 - 116)	4.2	(0-20)	SW846 8260B
Chlorobenzene	87	(76 - 117)			SW846 8260B
	93	(76 - 117)	6.6	(0-20)	SW846 8260B
1,1-Dichloroethene	113	(63 - 130)			SW846 8260B
	119	(63 - 130)	5.4	(0-20)	SW846 8260B
Toluene	89	(74 - 119)			SW846 8260B
	95	(74 - 119)	6.4	(0-20)	SW846 8260B
Trichloroethene	88	(75 - 122)			SW846 8260B
	94	(75 - 122)	6.9	(0-20)	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	96	(73 - 122)
	95	(73 - 122)
1,2-Dichloroethane-d4	86	(61 - 128)
	84	(61 - 128)
Toluene-d8	96	(76 - 110)
	94	(76 - 110)
4-Bromofluorobenzene	87	(74 - 116)
	90	(74 - 116)

### NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

# MATRIX SPIKE SAMPLE EVALUATION REPORT

## GC/MS Volatiles

Client Lot #...: A0C050473      Work Order #...: LWCJJ1AC-MS      Matrix.....: WG  
 MS Lot-Sample #: A0C050473-002      LWCJJ1AD-MSD  
 Date Sampled...: 03/04/10 10:25      Date Received...: 03/05/10  
 Prep Date.....: 03/08/10      Analysis Date...: 03/08/10  
 Prep Batch #...: 0068118  
 Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Benzene	104	(78 - 118)			SW846 8260B
	101	(78 - 118)	2.1	(0-20)	SW846 8260B
Chlorobenzene	94	(76 - 117)			SW846 8260B
	95	(76 - 117)	1.4	(0-20)	SW846 8260B
1,1-Dichloroethene	124	(62 - 130)			SW846 8260B
	122	(62 - 130)	1.3	(0-20)	SW846 8260B
Toluene	96	(70 - 119)			SW846 8260B
	98	(70 - 119)	1.7	(0-20)	SW846 8260B
Trichloroethene	98	(62 - 130)			SW846 8260B
	95	(62 - 130)	2.8	(0-20)	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	106	(73 - 122)
	98	(73 - 122)
1,2-Dichloroethane-d4	95	(61 - 128)
	94	(61 - 128)
Toluene-d8	100	(76 - 110)
	99	(76 - 110)
4-Bromofluorobenzene	95	(74 - 116)
	94	(74 - 116)

### NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

# MATRIX SPIKE SAMPLE EVALUATION REPORT

## GC/MS Volatiles

Client Lot #...: A0C050473      Work Order #...: LWCEC1AC-MS      Matrix.....: WATER  
 MS Lot-Sample #: A0C050456-001      LWCEC1AD-MSD  
 Date Sampled...: 03/03/10 08:50      Date Received...: 03/05/10  
 Prep Date.....: 03/09/10      Analysis Date...: 03/09/10  
 Prep Batch #...: 0071154  
 Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Benzene	103	(78 - 118)			SW846 8260B
	100	(78 - 118)	2.4	(0-20)	SW846 8260B
Chlorobenzene	93	(76 - 117)			SW846 8260B
	93	(76 - 117)	0.74	(0-20)	SW846 8260B
1,1-Dichloroethene	121	(62 - 130)			SW846 8260B
	130	(62 - 130)	7.3	(0-20)	SW846 8260B
Toluene	95	(70 - 119)			SW846 8260B
	96	(70 - 119)	0.80	(0-20)	SW846 8260B
Trichloroethene	90	(62 - 130)			SW846 8260B
	90	(62 - 130)	0.17	(0-20)	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	95	(73 - 122)
	99	(73 - 122)
1,2-Dichloroethane-d4	87	(61 - 128)
	88	(61 - 128)
Toluene-d8	95	(76 - 110)
	97	(76 - 110)
4-Bromofluorobenzene	87	(74 - 116)
	92	(74 - 116)

### NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters



# CONESTOGA-ROVERS & ASSOCIATES

8615 W. Bryn Mawr Avenue  
Chicago, Illinois 60631  
(773)380-9933 phone  
(773)380-6421 fax

SHIPPED TO  
(Laboratory Name):

Test America - North Canton

REFERENCE NUMBER:

34891

PROJECT NAME:

Evergreen Woods

## CHAIN-OF-CUSTODY RECORD

SAMPLER'S SIGNATURE: *Julie Sugaw* PRINTED NAME: Julie Lutzick

## PARAMETERS

## REMARKS

SEQ. No. DATE TIME SAMPLE IDENTIFICATION No.

SAMPLE MATRIX

No. OF CONTAINERS

PARAMETERS

REMARKS

3/4/10 910 GUN-035410-JL-71

W

3

X

USING

1085 -72

W

3

X

1135 -73

W

3

X

1345 -74

W

3

X

1500 -75

W

3

X

1530 -76

W

3

X

Tip Blank

TOTAL NUMBER OF CONTAINERS

26

RELINQUISHED BY: *Julie Sugaw* DATE: 3/4/10 TIME: 12:30

RECEIVED BY: ②

DATE: TIME:

RELINQUISHED BY: ② DATE: TIME:

RECEIVED BY: ③

DATE: TIME:

RELINQUISHED BY: ③ DATE: TIME:

RECEIVED BY: ④

DATE: TIME:

METHOD OF SHIPMENT: *FedEx*

AIR BILL No.

8071 5032 9831

White -Fully Executed Copy

Yellow -Receiving Laboratory Copy

Pink -Shipper Copy

Goldenrod -Sampler Copy

SAMPLE TEAM:

*Rob Boog*

*Julie Lutzick*

RECEIVED FOR LABORATORY BY:

*Julie Lutzick*

DATE: 3/5/10 TIME: 0915

004883

# TestAmerica Cooler Receipt Form/Narrative

Lot Number: A06050473

## North Canton Facility

Client CRA Project Evans Road By: [Signature]  
Cooler Received on 3/5/10 Opened on 3/5/10 (Signature)

FedEx ☒ UPS ☐ DHL ☐ FAS ☐ Stetson ☐ Client Drop Off ☐ TestAmerica Courier ☐ Other ☐

TestAmerica Cooler # TA 20 # Multiple Coolers ☐ Foam Box ☐ Client Cooler ☐ Other ☐

1. Were custody seals on the outside of the cooler(s)? Yes ☐ No ☒ Intact? Yes ☐ No ☐ NA ☒

If YES, Quantity \_\_\_\_\_ Quantity Unsalvageable \_\_\_\_\_

Were custody seals on the outside of cooler(s) signed and dated? Yes ☐ No ☐ NA ☒

Were custody seals on the bottle(s)? Yes ☐ No ☒

If YES, are there any exceptions? \_\_\_\_\_

2. Shippers' packing slip attached to the cooler(s)? Yes ☒ No ☐

3. Did custody papers accompany the sample(s)? Yes ☒ No ☐ Relinquished by client? Yes ☒ No ☐

4. Were the custody papers signed in the appropriate place? Yes ☒ No ☐

5. Packing material used: Bubble Wrap ☒ Foam ☒ None ☐ Other ☐

6. Cooler temperature upon receipt 1.3 °C See back of form for multiple coolers/temps ☐

METHOD: IR ☒ Other ☐

COOLANT: Wet Ice ☒ Blue Ice ☐ Dry Ice ☐ Water ☐ None ☐

7. Did all bottles arrive in good condition (Unbroken)? Yes ☒ No ☐

8. Could all bottle labels be reconciled with the COC? Yes ☒ No ☐

9. Were sample(s) at the correct pH upon receipt? Yes ☐ No ☐ NA ☒

10. Were correct bottle(s) used for the test(s) indicated? Yes ☒ No ☐

11. Were air bubbles >6 mm in any VOA vials? Yes ☐ No ☒ NA ☐

12. Sufficient quantity received to perform indicated analyses? Yes ☒ No ☐

13. Was a trip blank present in the cooler(s)? Yes ☒ No ☐ Were VOAs on the COC? Yes ☒ No ☐

Contacted PM \_\_\_\_\_ Date \_\_\_\_\_ by \_\_\_\_\_ via Verbal ☐ Voice Mail ☐ Other ☐

Concerning \_\_\_\_\_

### 14. CHAIN OF CUSTODY

The following discrepancies occurred:


### 15. SAMPLE CONDITION

Sample(s) \_\_\_\_\_ were received after the recommended holding time had expired.

Sample(s) \_\_\_\_\_ were received in a broken container.

Sample(s) \_\_\_\_\_ were received with bubble >6 mm in diameter. (Notify PM)

### 16. SAMPLE PRESERVATION

Sample(s) \_\_\_\_\_ were further preserved in Sample

Receiving to meet recommended pH level(s). Nitric Acid Lot# 121709-HNO<sub>3</sub>; Sulfuric Acid Lot# 082509-H<sub>2</sub>SO<sub>4</sub>; Sodium Hydroxide Lot# 100108 -NaOH; Hydrochloric Acid Lot# 092006-HCl; Sodium Hydroxide and Zinc Acetate Lot# 100108-(CH<sub>3</sub>COO)<sub>2</sub>ZN/NaOH. What time was preservative added to sample(s)? \_\_\_\_\_

Client ID	pH	Date	Initials



TestAmerica Cooler Receipt Form/Narrative  
North Canton Facility

[illegible]

Discrepancies Cont'd.

This image shows a single sheet of white paper with horizontal blue or grey ruling lines. The lines are evenly spaced and run across the width of the page. There is no handwriting or other markings on the paper.

***END OF REPORT***

ATTACHMENT B  
DATA VALIDATION REPORT



**CONESTOGA-ROVERS  
& ASSOCIATES**

8615 W. Bryn Mawr Avenue, Chicago, Illinois 60631  
Telephone: (773) 380-9933 Fax: (773) 380-6421  
www.CRAworld.com


---

## MEMORANDUM

---

TO: Ken Duwal

REF. NO.: 034891

FROM: Julie Czech/JC/7 

DATE: March 31, 2010

RE: **Data Quality Assessment and Validation for Groundwater Samples Collected at the  
Evergreen Manor Site in Roscoe Township, Illinois**

---

The following details the data quality assessment and validation conducted for the groundwater samples collected on March 4, 2010 at the Evergreen Manor Site in Roscoe Township, Illinois. The samples, identified in Table 1, were analyzed for the parameter listed in Table 2 by TestAmerica Laboratories, Inc., of North Canton, Ohio. The quality assurance criteria used to assess the data were established by the QAPP.<sup>1</sup>

### Holding Time Period

The holding time period is presented in Table 3. One sample cooler was received by the laboratory at a temperature below the lowest temperature specified for sample preservation per the methods. However, since the samples were colder than recommended by the methods, it was deemed that neither data quality was affected nor sample integrity compromised. The remaining sample analyses were completed within the required holding time periods and were collected and preserved properly.

### Method Blank Sample Data

Method blank sample data were evaluated to verify that analytes detected in the investigative samples were not attributable to laboratory conditions or procedures. Methylene chloride was detected in the method blank samples. Data qualification was not required as the analyte was not detected in the associated samples. The remaining method blank sample data were acceptable.

### Surrogate Compound Analyses

Method performance on individual samples was evaluated by the percent recovery data of surrogate compound spikes. The surrogate compound percent recovery data for all samples were acceptable.

### Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) Analyses

The accuracy and precision of the analyses were assessed by the percent recovery and relative percent difference (RPD) data from the LCS/LCSD analyses. The LCS/LCSD percent recovery and RPD data were acceptable.

---

<sup>1</sup> Application of quality assurance evaluation criteria was consistent with the relevant criteria in "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review", EPA-540/R-99/008, October 1999.

Matrix Spike/Matrix Spike Duplicate (MS/MSD) Sample Analyses

To assess the accuracy and precision of the analytical methods relative to the sample matrices, MS/MSD percent recoveries and RPDs were determined. The MS/MSD percent recovery and RPD data were acceptable.

Field Quality Assurance/Quality Control (QA/QC)

The field QA/QC analyses associated with these samples consisted of one field equipment blank, one trip blank, and one field duplicate sample set.

To monitor the effectiveness of field equipment decontamination procedures, a field equipment blank sample was collected and analyzed. Methylene chloride was detected in the field equipment blank sample. Data qualification was not required as the analyte was not detected in the associated samples. The remaining field equipment blank sample data were acceptable.

To monitor potential sample cross-contamination by VOCs during sample transportation and storage, a trip blank sample was submitted with each cooler containing investigative samples. Methylene chloride was detected in the trip blank sample. Data qualification was not required as the analyte was not detected in the associated samples. The remaining trip blank sample data were acceptable.

Overall precision for the sampling and analysis event was evaluated by field duplicate sample data. Table 4 presents the results of analytes detected in the investigative and field duplicate sample. An RPD of 50% was used as an advisory limit for analytes detected in both the investigative and duplicate samples at concentrations greater than or equal to 5 times the reporting limit. The RPD data indicate that the overall precision of the sampling and analysis event was acceptable.

Overall Assessment

The data were found to exhibit acceptable levels of accuracy and precision and are suitable for their intended use without qualification.

Attachments

**TABLE 1**

**SAMPLE IDENTIFICATION NUMBERS  
GROUNDWATER SAMPLES  
EVERGREEN MANOR SITE  
ROSCOE TOWNSHIP, ILLINOIS**

GW-030410-JL-71

GW-030410-JL-72

GW-030410-JL-73

GW-030410-JL-74

GW-030410-JL-75

GW-030410-JL-76

GW-030410-JL-77

TABLE 2

SUMMARY OF ANALYTICAL METHODS  
EVERGREEN MANOR SITE  
ROSCOE TOWNSHIP, ILLINOIS

<i>Parameter</i>	<i>Analytical Method</i> <sup>1</sup>
Volatile Organic Compounds (VOCs)	SW-846 8260B

<sup>1</sup> Methods were referenced from:  
SW-846 - "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", EPA SW-846,  
3rd Edition with promulgated Updates, November 1986.

TABLE 3

HOLDING TIME PERIODS  
EVERGREEN MANOR SITE  
ROSCOE TOWNSHIP, ILLINOIS

<i>Parameter</i>	<i>Holding Time Period</i>
VOCs	- 14 days from sample collection to completion of analysis



TABLE 4  
SUMMARY OF DETECTED ANALYTES FROM FIELD DUPLICATE SAMPLES  
GROUNDWATER SAMPLES  
EVERGREEN MANOR SITE  
ROSCOE TOWNSHIP, ILLINOIS

<i>Analyte</i>	<i>Investigative Sample GW-030410-JL-76 (µg/L)</i>	<i>Duplicate Sample GW-030410-JL-77 (µg/L)</i>	<i>RPD</i> <sup>1</sup>	<i>Qualifier</i>
Tetrachloroethene	0.63 J <sup>2</sup>	0.65 J	3.1	None
1,1,1-Trichloroethane	0.91 J	0.89 J	2.2	None
Trichloroethene	2.1	2.2	4.7	None

<sup>1</sup> RPD - Relative Percent Difference

<sup>2</sup> J - Estimated quantity